

NPTC/TSG/RED-174-70
13 July 1970

MEMORANDUM FOR: Chairman, EXRAND

SUBJECT : EXRAND Report on Development of Color Exploitation Equipment (Supplement)

REFERENCE : Memo for the Record, Same Subject, Dated 20 May 1970

1. Since the publication of the reference, additional information has been provided by the Army (TOPOCOM) and the Navy (NRTSC). This memorandum summarizes that information and should be considered a supplement to the reference.

2. Although the reference was called an "interim report", when it is combined with the supplementary information contained herein, these two documents will comprise the final report exclusively on the subject. The publication of the third annual EXRAND report of the Consolidated R&D Project List in October 1970 will include a more detailed, up-to-date list of Color Exploitation Equipment Development projects.

3. Supplementary inputs from the Army (TOPOCOM) and Navy (NRTSC) are summarized in paragraphs 4 and 5 below:

4. Army (TOPOCOM). TOPOCOM has had an active R&D program concerned with the mapping exploitation of color imagery for several years. The following are highlights of this effort.

a. Materials tested have included Aerial Ektachrome, [] bi-color, and multiband photography.

b. Bi-color was satisfactorily processed and utilized through the Universal Map Compilation Equipment (UNAMACE). Rectification alone is not satisfactory for making useful productions due to relief displacement mismatches. For target interpretation results were good.

c. Aerial color photography from the SR-71 has been processed through ortho-projection equipment to produce both 1:25,000 and 1:50,000 scale color photomap products which display excellent imagery and meet Army accuracy requirements. [] has also been used in this fashion. Products

SECRET

GROUP 1
Excluded from automatic
downgrading and
declassification

~~SECRET~~

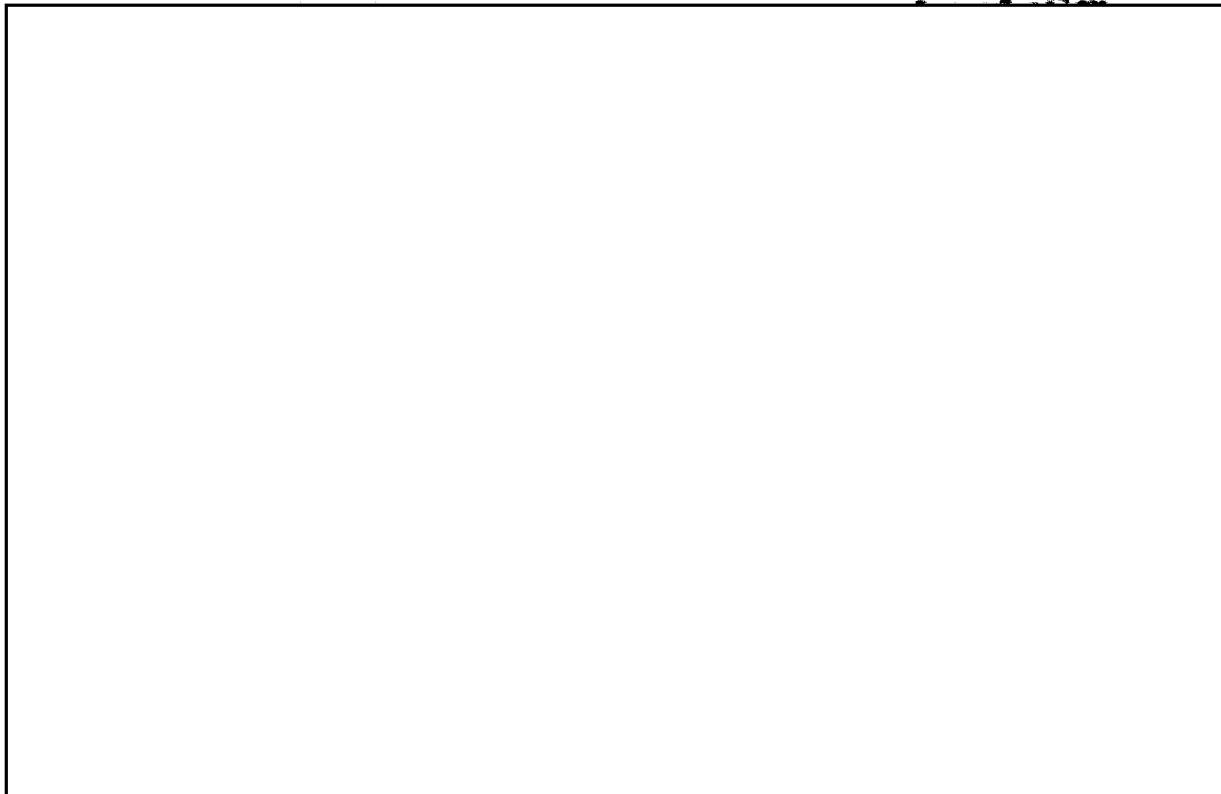
**SUBJECT: EXRAND Report on Development of Color Exploitation Equipment
(Supplement)**

are reproduced lithographically with excellent preservation of detail. Results are encouraging.

d. 80-242 emulsion is being evaluated for Army mapping programs.

e. Two 1:25,000 scale orthophotomaps of Fort Sill, Oklahoma have been made from standard color photography. Tone matching was not difficult and total production time was 1/25th that of a standard line map. The image resolution of the finished color orthophotomaps is excellent.

f. Summary. TOPOCOM is very enthusiastic over the high potential value of color photography to mapping and terrain analysis programs. It is moving to establish a production-quality color processing laboratory in the Base Production Plant and to standardize data reduction techniques.



~~SECRET~~

25X1

SECRET

Approved For Release 2004/03/26 : CIA-RDP78B05171A000200020115-9

SUBJECT: EXRAND Report on Development of Color Exploitation Equipment
(Supplement)

25X1 Project [] and other work in the Navy with color film has brought out several important facts about the equipment that is available for exploiting color photography.

a. Light Intensity. Color photography generally requires more light intensity for viewing than black and white--2,000 to 3,000 foot lamberts is generally adequate. Rear projection viewers do not have adequate light intensity for color film viewing.

b. Color Temperature of the Viewing Light. Color temperature must be above 3200K and should be in the daylight range of 5000-6000K for viewing color imagery. Here again rear projection viewers generally fall short.

c. Lenses. It was found that many lenses used in rear projection viewers were not corrected for color distortion and that the false colored areas created by the lens distortion had a significant detrimental influence on the image of color film projected through them. This effect is also noticeable in lenses used for direct viewing if they are not highly corrected for color distortion.

d. Digital Code Blocks. Very few of the digital code blocks recorded by the RA-50 system on color photography could be read by the code block reader. No detailed analysis has been conducted.

e. Summary. The Navy is not now conducting any research, development or test projects related to the exploitation of color film. In the near future, the Naval Reconnaissance and Technical Support Center will initiate two small projects. One will investigate the problems involved in reading digital code blocks written on color film. The other will be an update to the Joint Services Image Interpretation Handbook. It is planned that a new chapter will be added to the Handbook that will present what is currently available in known techniques for the exploitation of color photography. In addition, the Navy intends to specify in the future development or procurement of image exploitation equipment that the light intensity, color temperature of the light, and the lens corrections for color distortion (when involved) be adequate for the satisfactory viewing and analysis of color film.

SECRET

SECRET

Approved For Release 2004/03/26 : CIA-RDP78B05171A000200020115-9

**SUBJECT: EXRAND Report on Development of Color Exploitation Equipment
(Supplement)**


**Chairman, Technical Task Team
EXRAND**

25X1

Distribution:

Original - Ch/EXRAND

1 ea. - EXRAND Members

1 - TSG/RED

Approved For Release 2004/03/26 : CIA-RDP78B05171A000200020115-9

SECRET